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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/099,936	03/13/2002	Andrew McIntosh Soutar	23905-029	3281
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EXAMINER				
TALBOT, BRIAN K				
ART UNIT		PAPER NUMBER		
1792				
MAIL DATE		DELIVERY MODE		
12/30/2008		PAPER		

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ANDREW MCINTOSH SOUTAR and
PETER THOMAS MCGRATH

Appeal 2008-3724
Application 10/099,936
Technology Center 1700

Decided: December 30, 2008

Before BRADLEY R. GARRIS, CHUNG K. PAK, and
PETER F. KRATZ, *Administrative Patent Judges*.

PAK, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal under 35 U.S.C. § 134 from the Examiner's final rejection of claims 18 through 26 and 32 through 40, all of the claims pending in the above-identified application. We have jurisdiction pursuant to 35 U.S.C. § 6.

We AFFIRM-IN-PART.

STATEMENT OF THE CASE

The subject application¹ containing the subject matter on appeal is a continuation of U.S. Patent Application 08/939,656, which was filed September 29, 1997 and matured into U.S. Patent No. 6,395,329 B2 (hereinafter "Soutar '329"), which, in turn, is a continuation of U.S. Patent Application 08/567,885, which was filed December 8, 1995, and is now abandoned (hereinafter "Soutar '885"). (See the preliminary amendment dated March 13, 2002). According to Appellants, the subject application is also related to U.S. Patent Application 10/118,417, which was filed April 8, 2002, and matured into U.S. Patent No. 6,860,925 (hereinafter "Soutar '925"). (Br. 4-5).

The appealed subject matter relates to an immersion silver plating solution and a process for improving the solderability of a metal surface using the immersion silver plating solution. (Spec. 1). Further details of the appealed subject matter are recited in representative claims 18, 20, 23-24, 26, 32, 34, 37-38, and 40, which are reproduced below:

18. A process for improving the solderability of a metal surface, said process comprising treating the metal surface with an immersion silver plating solution, said solution comprising:
- a). a soluble source of silver ions;
 - b). an acid;
 - c). an additive selected from the group consisting of fatty amines, fatty amides, quaternary salts, and ethoxylated versions of any of the foregoing.

¹ We note that US 2002/0150692 A1, published Oct. 17, 2002 (hereinafter "Soutar '692"), is the corresponding published U.S. Patent Application of the subject application.

20. A process according to claim 18 wherein the silver plating solution also comprises an oxidant.

23. A process according to claim 22 wherein the silver plating solution also comprises an oxidant.

24. An immersion silver plating solution comprising
(i) a soluble source of silver ions,
(ii) an acid and
(iii) an additive selected from the group consisting of fatty amines, fatty amides, quaternary salts, and ethoxylated versions of any of the foregoing.

26. An immersion plating solution according to claim 24 also comprising an oxidant.

32. A process for improving the solderability of a metal surface, said process comprising:
a). contacting the metal surface with an immersion silver plating solution thereby producing an immersion silver plate upon the metal surface; and thereafter
b). treating the immersion silver plated metal surface with a solution comprising an additive selected from the group consisting of fatty amines, fatty amides, quaternary salts, and ethoxylated versions of any of the foregoing.

34. A process according to claim 32 wherein the silver plating solution also comprises an oxidant.

37. A process according to claim 36 wherein the silver plating solution also comprises an oxidant.

38. An immersion silver plating solution comprising an additive selected from the group consisting of fatty amines, fatty amides, quaternary salts, and ethoxylated versions of any of the foregoing.

40. An immersion plating solution according to claim 38 also comprising an oxidant.

As evidence of patentability of the claimed subject matter, Appellants rely upon the following references:

Nelson	US 4,846,918	Jul. 11, 1989
Preisler	US 5,362,712	Nov. 8, 1994
Kukanskis	US 5,037,482	Aug. 6, 1991

The Examiner rejects the claims on appeal as follows:

Claims 18-26 and 32-40 under 35 U.S.C. § 112, first paragraph as failing to provide written descriptive support for the presently claimed subject matter in the application disclosure, as originally filed.

ISSUES

Appellants argue that the instant application and its parent applications (Soutar '329, and Soutar '885) as originally filed reasonably convey to one of ordinary skill that Appellants, at the time the application was filed, had possession of the limitation "fatty amides" recited in claims 18, 24, 32, and 38. (Br. 6-7). In this regard, Appellants argue that the Examiner has not established a prima facie case of lack of written descriptive support for the limitation "fatty amides" recited in these claims. (Br. 10).

The Examiner, on the other hand, finds that the limitation "fatty amides" recited in claims 18, 24, 32, and 38 "was not described in the specification in such a way as to reasonably convey to one [of ordinary skill] in the relevant art that the inventor(s), at the time the application was filed, had possession of the [later] claimed invention." (Ans. 3). According to the Examiner, the claim limitation "fatty amides" is not found in the instant

application and its parent applications (Soutar '329 and Soutar '885) as originally filed. (Ans. 3).

Thus, the issue is: Has the Examiner established a *prima facie* case of unpatentability by demonstrating that the later claimed limitation "fatty amides" recited in claim 18, 24, 32, and 38 was not described in the originally filed disclosure in such a way as to reasonably convey to one of ordinary skill in the art, at the time the application was filed, that the inventors had possession of the later claimed invention within the meaning of 35 U.S.C. § 112, first paragraph?

Next, the Examiner finds that the limitation "oxidant" recited in claims 20, 23, 26, 34, 37, and 40 "was not described in the specification in such a way as to reasonably convey to one [of ordinary skill] in the relevant art that the inventor(s), at the time the application was filed, had possession of the [later] claimed invention." (Ans. 3). According to the Examiner, the claim limitation "oxidant" is not found in the instant application and its parent application (Soutar '329 and Soutar '885) as originally filed. (Ans. 3, 8).

Appellants, on the other hand, contend that the Specification provides "written description support for [the limitation] 'oxidant' [recited in claims 20, 23, 26, 34, 37, and 40] . . . by numerous references in the original specification to 'nitric acid' as a component of the plating composition." (Br. 8, 10). Stated differently, Appellants consider their disclosure of nitric acid to provide written descriptive support for the claimed oxidant. In this regard, Appellants argue that the Examiner has failed to establish a *prima facie* case of lack of written descriptive support for the limitation "oxidant" recited in claims 20, 23, 26, 34, 37, and 40. (Br. 10). Appellants also rely

upon literature evidence to support their argument for written descriptive support of the limitation "oxidant" recited in these claims. (Br. 7-8).

Thus, the issue is: Has the Examiner established a prima facie case of unpatentability by demonstrating that the later claimed limitation "oxidant" recited in claims 20, 23, 26, 34, 37, and 40 was not described in the originally filed disclosure in such a way as to reasonably convey to one of ordinary skill in the art, at the time the application was filed, that the inventors had possession of the later claimed invention within the meaning of 35 U.S.C. § 112, first paragraph and if so, does the evidence submitted by Appellants rebut the Examiner's prima facie case?

RELEVANT FINDINGS OF FACT (FF)

1. There is no dispute that the originally filed disclosures of the application on appeal (at p. 22, ll. 8-20), Soutar '329 (at col. 10, l. 10-26), and Soutar '885 (at p. 22) individually state:

Suitable tarnish inhibitors for use in all aspects of the present invention include for example:

(a) fatty acid amines, preferably having at least 6 carbon atoms, most preferably at least 10 carbon atoms and generally no greater than 30 carbon atoms, they may be primary, secondary, tertiary, diamines, amine salts, amides, ethoxylated amines, ethoxylated diamines, quaternary ammonium salts, quaternary diammonium salts, ethoxylated quaternary ammonium salts, ethoxylated amides and amine oxides.

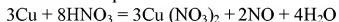
2. Appellants argue, "[the Specification's use of the term] 'they' clearly refers back to the 'fatty acid amines.' So the 'amides' linked to the

- 'fatty acid amines' by 'they' must also be 'fatty.' . . . If an amine is 'fatty,' its corresponding amide must also be 'fatty.'" (Br. 6).
3. The Examiner states that the "specification does teach 'amides' or 'ethoxylated amides' . . . but [contains] no recitation that these amides are 'fatty amides'." (Ans. 3).
 4. The Examiner provides no reasons or explanations why one of ordinary skill in the art would not have interpreted the passage in the Specification referred to above in the manner stated by Appellants. (See Answer in its entirety).
 5. The Examiner finds no written descriptive support for the later added limitation "oxidant" in claims 20, 23, 26, 34, 37, and 40 and states that the paragraphs of the Specification relied upon by the Appellants do not recite nitric acid as an oxidant, but as a buffering agent. (Ans. 4).
 6. The Specification, as originally filed, states (p. 24, l. 15 to p. 25, l. 2):

A buffering agent may be included in the plating composition to ensure that the pH of the composition is within the desired range. As the buffering agent, any compatible acid or base may be included. A compatible acid or base is an acid or base which in the amounts required in the composition does not result in the precipitation out of solution of the silver ions and/or complexing agent. For example hydrogen chloride is unsuitable for a silver plating composition as it forms an insoluble silver chloride precipitate. Suitable examples include sodium or potassium hydroxide or a carbonate salt, or where acids are required, suitable acids may include citric acid, nitric acid or acetic acid. Borates, phthalates, acetates, phosphonates may be used but the buffer should not result in precipitation of the metal salts and preferably does not inhibit the plating rate. An appropriate buffer will be dependent on the desired working pH..

7. There is nothing in Appellants' originally filed disclosures of the application on appeal, Soutar '329, and Soutar '885 (at p. 22) which indicates using nitric acid as an oxidant. (See disclosures in their entirety).
8. Appellants rely for the first time in the prosecution of the subject application on the following passages from Nelson, Preisler, and Kukanskis as rebuttal evidence:

U.S. PAT. 4,846,918 [Nelson], Col. 1, Ins 58-64
In the nitric acid etching chemistry disclosed in U.S. Pat. Nos. 4,497,687 and 4,545,850, nitric acid reacts with copper according to the relationship



with the nitric acid serving both as an oxidant and as an anion source for the dissolved copper.

U.S. PAT. 5,362,712 [Preisler] ; Claim 1

1. . . . to dissolve the copper mold . . . **nitric acid is simultaneously used as said mineral acid and said oxidizing agent**

U.S. PAT. 5,037,482 [Kukanskis]; Col. 5. Ins 23 ff.

The oxidizer must be of a type, and present in an amount, sufficient to provide in cooperating interaction with the surfactant, a controlled conversion of the copper surface from a substantially smooth surface to a substantially clean, substantially uniformly micro-roughened surface, so that the bonding characteristics of the copper surface are substantially increased for securely adhering a subsequently applied coating to the copper surface, without at the same time removing the copper surface itself from the underlying substrate to which it is adhered. An oxidizing agent which is too active, and/or which is used in too substantial concentrations, not only runs the risk of uncontrolled stripping of the copper surface from its underlying substrate, but more importantly has been found ineffective to produce the required micro-roughened topography on the remaining **copper surface. Results such as this have been found with compositions**

containing nitric acid as the oxidizer. Even where complete stripping is avoided, the remaining copper surface is nevertheless surprisingly smooth and unacceptable for promoting adhesion of subsequently applied coatings. [Nitric acid was discussed in the context of the prior art; and the inventors preferred methane sulfonic acid over nitric acid.]

(Br. 8-9)(emphasis in Appellants' recitation)

9. Claims 20, 23, 26, 34, 37, and 40 are not limited to nitric acid as they broadly recite an "oxidant," which encompasses any and all oxidants, including those materially different from nitric acid and those incapable of performing a buffering function.

10. Nowhere does the original disclosure relied upon by Appellants indicate that oxidants can be used in addition to an acid, such as nitric acid (buffering agent) as recited in claims 20, 23, and 26. (*See* the Brief in its entirety and Spec. p. 24, l. 15 to p. 25, l. 2).

PRINCIPLES OF LAW

To obtain the benefit of the filing date of an earlier application, the subject matter claimed in the present application must be supported by the written description provided in the earlier application within the meaning of 35 U.S.C. § 112, first paragraph. *In re Wilder*, 736 F.2d 1516, 1520 (Fed. Cir. 1994). The subject matter claimed in the present application can find written descriptive support either explicitly or inherently in the earlier application. *Kennecott Corp. v. Kyocera Int'l Inc.*, 835 F.2d 1419, 1421-23 (Fed. Cir. 1987).

Appellants have the burden of establishing that an earlier application in a chain of which it is a part either inherently, implicitly or expressly provides written descriptive support for the claimed subject matter of the present application within the meaning of 35 U.S.C. § 112, first paragraph. *See Lemelson v. TRW, Inc.*, 760 F.2d 1254, 1266 (Fed. Cir. 1985); *see also In re Ziegler*, 992 F.2d 1197, 1200, (Fed. Cir. 1993) (The burden of establishing entitlement to the filing date of a previously filed foreign application is on the applicant.); *Langer v. Kaufman*, 465 F.2d 915, 913 (CCPA 1972) (“To prove inherency, the burden is on appellants to show that the ‘necessary and only reasonable construction to be given the disclosure by one skilled in the art is one which will lend clear support to....[this] positive limitation...”).

“The test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language.” *In re Kaslow*, 707 F.2d 1366, 1375 (Fed. Cir. 1983).

The burden of showing that the claimed invention is not described in the specification rests on the Examiner. *In re Wertheim*, 541 F.2d 257, 262-265 (CCPA 1976). The Examiner meets his burden when he presents "evidence or reasons why persons skilled in the art would not recognize in the disclosure a description of the invention defined by the claims." *Wertheim*, 541 F.2d at 263.

Once the Examiner carries the burden of making out a prima facie case of unpatentability, "the burden of coming forward with evidence or

argument shifts to the applicant." *In re Oetiker*, 977 F.2d 1443, 1445 (Fed. Cir. 1992)).

When a claim employs the transitional term "comprising," it is interpreted as not precluding the presence of additional ingredients and/or steps, which are not recited. *In re Baxter*, 656 F.2d 679, 686-87 (CCPA 1981).

ANALYSES

Claims 18-19, 21-22, 24-25, 32, 33, 35-36, and 38-39

The specification, as originally filed, recites, "suitable tarnish inhibitors . . . include for example: (a) **fatty acid amines**, preferably having at least 6 carbon atoms, most preferably at least 10 carbon atoms and generally no greater than 30 carbon atoms, **they may be . . . amides**." (FF 1)(emphasis added). As well stated by Appellants, "[the Specification's use of the term] 'they' clearly refers back to the 'fatty acid amines.' So the 'amides' linked to the 'fatty acid amines' by 'they' must also be 'fatty.' . . . If an amine is 'fatty,' its corresponding amide must also be 'fatty.'" (FF 2).

The Examiner's argument that the "specification does teach 'amides' or 'ethoxylated amides' . . . but [contains] no recitation that these amides are 'fatty amides'" misses the mark. (FF 3). The Examiner simply fails to provide reasons or explanations why one of ordinary skill in the art would not have interpreted the passage in the Specification referred to above in the manner stated by Appellants (FF 4).

Therefore, we find that the Examiner has failed to established a prima facie case of unpatentability by failing to demonstrate that the later claimed limitation "fatty amides" recited in claims 18, 24, 32, and 38 was not

described in the originally filed disclosure in such a way as to reasonably convey to one of ordinary skill in the art, at the time the application was filed, that the inventors had possession of the later claimed invention within the meaning of 35 U.S.C. § 112, first paragraph.

Accordingly, for the reasons stated by Appellants in the Brief and above, we reverse the Examiner's decision rejecting the claims 18-19, 21-22, 24-25, 32, 33, 35-36, and 38-39 under the 35 U.S.C. § 112, first paragraph.

Claims 20, 23, 26, 34, 37, and 40

While it is true that the Specification teaches the use of nitric acid, it does so in the context of using nitric acid as a buffering agent. (FF 5). Indeed, the Specification states, "[a] buffering agent may be included in the plating composition to ensure that the pH of the composition is within the desired range. As the buffering agent, any compatible acid or base may be included. . . Suitable examples include . . . nitric acid . . ." (FF 6). There is nothing in the originally filed disclosure relied upon by Appellants, which indicates that nitric acid is used as an oxidant. (FF 7).

Thus, we concur with Examiner that a prima facie case of unpatentability has been made out since the later claimed limitation "oxidant" recited in claims 20, 23, 26, 34, 37, and 40 was not described in the originally filed disclosure in such a way as to reasonably convey to one of ordinary skill in the art, at the time the application was filed, that the inventors had possession of the later claimed invention within the meaning of 35 U.S.C. § 112, first paragraph.

As a rebuttal to the Examiner's prima facie case, Appellants contend that "the specification's disclosure of 'nitric acid' -- a known oxidant for

copper-- reasonably conveys to the artisan that applicants [Appellants] had possession of immersion silver plating solutions comprising an oxidant." (Br. 9, 10). To support their contention, Appellants rely for the first time in the prosecution of the subject application on the following passages from Nelson, Preisler, and Kukanskis² as rebuttal evidence:

U.S. PAT. 4,846,918 [Nelson], Col. 1, Ins 58-64
In the nitric acid etching chemistry disclosed in U.S. Pat. Nos. 4,497,687 and 4,545,850, nitric acid reacts with copper according to the relationship
$$3\text{Cu} + 8\text{HNO}_3 = 3\text{Cu}(\text{NO}_3)_2 + 2\text{NO} + 4\text{H}_2\text{O}$$
with the nitric acid serving both as an oxidant and as an anion source for the dissolved copper.

U.S. PAT. 5,362,712 [Preisler] ; Claim 1
1. . . . to dissolve the copper mold . . . **nitric acid is simultaneously used as said mineral acid and said oxidizing agent**

U.S. PAT. 5,037,482 [Kukanskis]; Col. 5. Ins 23 ff.
The oxidizer must be of a type, and present in an amount, sufficient to provide in cooperating interaction with the surfactant, a controlled conversion of the copper surface from a substantially smooth surface to a substantially clean, substantially uniformly micro-roughened surface, so that the bonding characteristics of the copper surface are substantially increased for securely adhering a subsequently applied coating to the copper surface, without at the same time removing the copper surface itself from the underlying substrate to which it is adhered. An oxidizing agent which is too active, and/or which is used in too substantial concentrations, not only runs the risk of uncontrolled stripping of the copper surface from its underlying

² We note that it is unclear whether these references have been properly submitted as evidence. See § 41.33(d)(1). Nevertheless, we will treat them as if they were properly submitted since the Examiner has discussed these references in the Answer. (Ans. 4).

substrate, but more importantly has been found ineffective to produce the required micro-roughened topography on the remaining **copper surface. Results such as this have been found with compositions containing nitric acid as the oxidizer.** Even where complete stripping is avoided, the remaining copper surface is nevertheless surprisingly smooth and unacceptable for promoting adhesion of subsequently applied coatings. [Nitric acid was discussed in the context of the prior art; and the inventors preferred methane sulfonic acid over nitric acid.]

(FF 8)(emphasis in Appellants' recitation)

However, these passages do not indicate that the amounts of nitric acid used for the buffering purpose are capable of providing an oxidizing function in an immersion silver plating solution (Br. 8; *see* FF 2, 6). Even if nitric acid does perform as an oxidant, it does not provide written descriptive support for any and all oxidants, including those materially different from nitric acid and those incapable of performing a buffering function (FF 9). More importantly, nowhere does the original disclosure relied upon by Appellants indicate that oxidants can be used in addition to an acid, such as nitric acid (buffering agent), as recited in claims 20, 23 and 26. (FF 10).

Therefore, we determine that the evidence submitted by Appellants fails to rebut the Examiner's *prima facie* case of unpatentability.

Accordingly, based on the Factual Findings set forth above and in the Answer, we concur with the Examiner's decision rejecting the claims 20, 23, 26, 34, 37, and 40 under 35 U.S.C. § 112, first paragraph.

ORDER

It is ordered that:

1. The § 112, first paragraph rejection of claims 18-19, 21-22, 24-25, 32-33, 35-36, and 38-39 is reversed; and

2. The § 112, first paragraph rejection of claims 20, 23, 26, 34, 37, and 40 is affirmed.

Accordingly, the decision of the Examiner is affirmed-in-part.

TIME PERIOD

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED-IN-PART

tf/ljs

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